

OPINION 573

DETERMINATION UNDER THE PLENARY POWERS OF A LECTO-TYPE FOR THE NOMINAL SPECIES *HELIX VIVIPARA* LINNAEUS, 1758, AND ADDITION TO THE OFFICIAL LISTS OF THE GENERIC NAME *VIVIPARUS* MONTFORT, 1810, AND THE FAMILY-GROUP NAME VIVIPARIDAE GRAY, 1847 (CLASS GASTROPODA)

RULING.—(1) Under the plenary powers :

- (a) all previous selections of lectotypes for the nominal species *Helix vivipara* Linnaeus, 1758, are hereby set aside, and
- (b) the specimen selected by H. Watson, 1955, is designated as lectotype of that nominal species ;
- (c) the family-group name PALUDINIDAE J. E. Gray, 1840, is hereby suppressed for the purposes of the Law of Priority but not for those of the Law of Homonymy.

(2) The generic name *Viviparus* Montfort, 1810 (gender : masculine), type-species, by original designation, *Helix vivipara* Linnaeus, 1758 (as interpreted under the plenary powers in (1)(b) above) is hereby placed on the Official List of Generic Names in Zoology with the Name No. 1377.

(3) The following specific names are hereby placed on the Official List of Specific Names in Zoology with the Name Numbers specified :

- (a) *vivipara* Linnaeus, 1758, as published in the binomen *Helix vivipara*, and as determined under the plenary powers in (1)(b) above (type-species of *Viviparus* Montfort, 1810) (Name No. 1682) ;
- (b) *contectum* Millet, 1813, as published in the binomen *Cyclostoma contectum*, and as interpreted by the lectotype selected by Forcart, 1957 (Name No. 1683).

(4) The following generic names are hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology with the Name Numbers specified :

- (a) *Paludina* Lamarck, 1812 (a cheironym) (Name No. 1295) ;
- (b) *Paludina* Férussac, 1812 (a junior objective synonym of *Viviparus* Montfort, 1810) (Name No. 1296) ;
- (c) *Vivipara* J. Sowerby, 1813 (an erroneous subsequent spelling of *Viviparus* Montfort, 1810) (Name No. 1297) ;
- (d) *Viviparella* Rafinesque, 1815 (an unjustified emendation of *Viviparus* Montfort, 1810) (Name No. 1298) ;
- (e) *Viviparous* Collinge, 1891 (an erroneous subsequent spelling of *Viviparus* Montfort, 1810) (Name No. 1299) ;
- (f) *Vivipara* Kobelt, 1906 (an erroneous subsequent spelling of *Viviparus* Montfort, 1810) (Name No. 1300).

(5) The specific name *fluviorum* Montfort, 1810, as published in the binomen *Viviparus fluviorum* (a junior objective synonym of *Helix vivipara* Linnaeus, 1758), is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology (Name No. 602).

(6) The family-group name VIVIPARIDAE J. E. Gray, 1847 (type-genus *Viviparus* Montfort, 1810) is hereby placed on the Official List of Family-Group Names in Zoology (Name No. 275).

(7) The family-group name PALUDINIDAE J. E. Gray, 1840 (type-genus *Paludina* Férussac, 1812) (suppressed under the plenary powers in (1)(c) above) is hereby placed on the Official Index of Rejected and Invalid Family-Group Names in Zoology (Name No. 311).

HISTORY OF THE CASE (Z.N.(S.) 857)

In July 1950, Mr. A. E. Ellis (Epsom, Surrey, England) submitted a list of names of non-marine Molluscan genera for addition to the Official List. Thirty-four of these names were dealt with in Opinion 335 (*Ops. Decls. I.C.Z.N.* 10 : 45-76), but the present case presented special problems and was therefore postponed for separate treatment. Eventually, the following papers were sent to the printer on 2 January 1957 and published on 29 March 1957 :

Ellis, A. E., "Proposed addition to the Official List of Generic Names in Zoology of the generic name *Viviparus* Montfort, 1810, and proposed validation under the Plenary Powers of the family-group name VIVIPARIDAE Gray (J.E.), 1847", *Bull. zool. Nomencl.* 13 : 38-43 ;

Forcart, L., "Proposed determination of interpretation of, and addition of to the Official List of Specific Names in Zoology of, (a) *vivipara* Linnaeus, 1758, as published in the combination *Helix vivipara* and (b) *contectum* Millet, 1813, as published in the combination *Cyclostoma contectum*, and proposed validation under the Plenary Powers of the family-group name VIVIPARIDAE Gray (J.E.), 1847, *ibid.* : 44-49 ;

Boettger, C. R., "Proposed addition to the Official List of Specific Names in Zoology of the specific name *vivipara* Linnaeus, 1758, as published in the combination *Helix vivipara*, as interpreted by Müller (O.F.) in 1774", *ibid.* : 50-52 ;

Watson, H., "Which of the two common British species of *Viviparus* Montfort, 1810, should be named *Viviparus viviparus* (Linnaeus) (= *Helix vivipara* Linnaeus, 1758) ? ", *ibid.* : 53-66 ;

Baily, J. L., jr., "Proposed use of the Plenary Powers to validate the generic name *Paludina* Férussac, 1812, by suppressing the name *Viviparus* Montfort, 1810", *ibid.* : 67-72.

Public Notice of the possible use of the plenary powers was given in the same part of the *Bulletin*, as well as to the other prescribed serial publications (*Bull. zool. Nomencl.* 4 : 51-56) and to two serials dealing with Mollusca.

Mr. Ellis's application was supported by Dr. Horace B. Baker (University of Pennsylvania, U.S.A.) (*Bull. zool. Nomencl.* 13 : 205) and by Mrs. W. S. S. van der Feen (Zoologisch Museum, Amsterdam, Netherlands) (*ibid.* : 250). Comments received too late for publication are given below.

The principal point of controversy in this case concerned the interpretation of the specific name *Helix vivipara* Linnaeus, 1758. Distinct from this was the question of whether the genus to which that species is referred is to be called *Viviparus* Montfort, 1810, or *Paludina* Férussac, 1812 ; and the question of whether the family name involved should be VIVIPARIDAE Gray, 1847, or

PALUDINIDAE Gray, 1840, depended on the answer to the latter question. There was eventually a total of sixteen documents in the case, of which the first seven were the five papers and two comments published in *Bull. zool. Nomencl.* 13 (see above). The other nine documents were circulated to the Commission with the following report on 12 March 1959.

I. INTRODUCTION

"This report is designed to show in condensed form the matters of principle involved in this case and the means adopted in devising, for the purposes of obtaining a Vote from the Commission, a series of alternative propositions to represent the conflicting and overlapping requests put forward. The Voting Paper is divided into three parts, in each of which a vote is requested for one or the other of two alternatives. This has been found necessary because the problems at the specific name level are independent of those at the generic and family name levels.

"2. There are sixteen separate documents before the Commission in the present case. Seven of these have been published in *Bull. zool. Nomencl.* 13 and the other nine are circulated herewith. For the sake of convenience, they have been given Document Numbers by which they are referred to in this report. The references are :

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| Document | 1. Ellis, A. E., <i>Bull. zool. Nomencl.</i> 13 : 38-43 |
| | 2. Forcart, L., <i>ibid.</i> : 44-49 |
| | 3. Boettger, C., <i>ibid.</i> : 50-52 |
| | 4. Watson, H., <i>ibid.</i> : 53-66 |
| | 5. Baily, J. L., <i>ibid.</i> : 67-72 |
| | 6. Baker, H. B., <i>ibid.</i> : 205 |
| | 7. van der Feen, W. S. S., <i>ibid.</i> : 250 |
| | 8. Statement by Commissioner Mayr, 16.7.57 |
| | 9. Letter from Dr. H. A. Rehder, 23.9.57 |
| | 10. Letter from Dr. Bengt Hubendick, 25.10.57 |
| | 11. Letter from Dr. I. C. J. Galbraith, 11.2.58 |
| | 12. Statement by Dr. Boettger, 11.11.58 |
| | 13. Letter from Commissioner Mertens, Dr. A. Zilch and
Dr. O. Kraus, 24.11.58 |
| | 14. Statement from Mr. Ellis, 28.11.58 |
| | 15. Letter from Mr. M. P. Kerney, 3.12.58 |
| | 16. Letter from Commissioner Mayr, 22.1.59. |

II. SPECIFIC NAME PROBLEMS

"3. The specific name *vivipara* Linnaeus, 1758 (*Helix*) has been used for two distinct, though nearly related species of freshwater snails, referred to below as the "narrow" and the "ventricose" species respectively. The Commission has conflicting proposals before it, (a) as to the species to which the name *vivipara* is in future to be applied, and (b) as to the valid name of the other species.

"4. Ellis (1), supported by Forcart (2), Watson (4), Baily (5), van der Feen (7), Rehder (9), Hubendick (10), Galbraith (11), and Kerney (15), all

of them specialists in the field concerned, ask that the specific name *vivipara* Linnaeus, 1758 be applied to the "narrow" species, as defined by the lectotype selected by Watson, 1955 (*Proc. Malac. Soc. Lond.* 31 : 163-174). Commissioner Mayr, who is not a specialist in Mollusca, has impartially examined all the evidence and concludes (16) that this view is supported by the weight of the evidence. Forcart (2), Watson (4), Rehder (9), Galbraith (11) and Kerney (15) further hold that *contectum* Millet, 1813 (*Cyclostoma*) should be accepted as the name for the "ventricose" species. Boettger (3), on the other hand, supported by Commissioner Mertens, Zilch and Kraus (13) ask that *vivipara* Linnaeus be applied to the "ventricose" species and that *fasciata* O. F. Miller, 1774 (*Nerita*) be adopted as the name for the "narrow" species. The arguments adduced on each side are, however, technically defective, as is explained in the following paragraphs.

"5. Watson (4) claims that the Linnean species is homogeneous, whereas Boettger alleges that it is a composite. Thus, for Watson, there can be no question of restriction of the original concept by later revisers, while Boettger's case rests on the identification of the author who acted as "first reviser". *Helix vivipara* Linnaeus, 1758 is based on nine elements (listed below), so that any author is at liberty to apportion these elements among different species according to his subjective opinion. As with any nominal species that is not based on a single, originally designated holotype, a statement that the original concept is a composite cannot be disproved. The way in which these two authorities differ in interpreting each of the elements is shown in the following table.

Element	Watson's view	Boettger's view
Description in <i>Syst. Nat.</i> (ed. 10) : 772, 1758	The words "imperforata, obtusa" refer to two characters diagnostic of the "narrow" species	Agrees better with the "narrow" but does not exclude the "ventricose" species.
Habitat cited by Linnaeus (<i>ibid.</i>)	Habitat is not a sound basis for differentiating the two species	The "ventricose" species
Citation of <i>Fauna svecica</i>	The locality cited is the river Sala, where only the "narrow" species occurs	Includes both species
Lister, <i>Hist. anim. Angl.</i> pl. 2, fig. 18	Indeterminable	Indeterminable
Lister, <i>Exerc.</i> , p. 17, tab. 2	The page is that where Lister describes only the "narrow" species (the other is dealt with on pp. 263-265). The plate has figures of a species of <i>Lymnaea</i> besides those here discussed	Both species

<i>Element</i>	<i>Watson's view</i>	<i>Boettger's view</i>
Lister, <i>Conch.</i> 2 : pl. 126, fig. 26	The "narrow" species	The "narrow" species
Gualtieri, <i>Test.</i> pl. 5, fig. A (cited by Linnaeus as "fig. 1")	An immature specimen of the "narrow" species	The "ventricose" species
Swammerdam, <i>Bibl.</i> : pl. 9, fig. 13 (cited as "fig. 3")	A poor figure of the "narrow" species	Probably the "narrow" species
Two original specimens in the Linnean collection	The "narrow" species	The "narrow" species

"6. It will be seen that Watson's claim that the species is not a composite is weakened by his admission that one of the synonyms cited by Linnaeus is indeterminable, and that Boettger admits that the greater number of the elements of which the original nominal species is composed belong to the "narrow" species. It therefore seems futile to prolong the argument as to the composite or non-composite nature of the species, since the evidence is too indefinite for a solution to be reached on that basis. Boettger's statement that the species is composite, whether true or not, cannot be disproved absolutely.

"7. One further flaw in each argument should be mentioned. Watson (4) claims that only the specimens in the Linnean collection are to be regarded as syntypes, while the cited synonyms can be ignored. This is, of course, contrary to the Rules. On the other hand, Boettger claims that the two species can be distinguished by their habitat, but Ellis (14) quotes from the literature to show that this view is misleading.

"8. The next step is clearly to consider in what way the original concept of *Helix vivipara* Linnaeus has been restricted or given objective definition, and to decide on the evidence whether such a restriction or definition is in accord with current usage, or whether the plenary powers should be invoked in the interests of stability of nomenclature. Boettger (4, 12) and his supporters claim that the Linnean species was first validly restricted by O. F. Müller, 1774 (*Verm. terrestr. fluv.* 2 : 182-184). I have compared this reference with the original Linnean reference, and find no evidence that Müller restricted the Linnean species in any way. He quoted (under *Nerita vivipara*) the Linnean description verbatim, with five of the six synonyms cited by Linnaeus, and with additional synonyms. These synonyms are such as to enlarge rather than reduce the extent of the nominal species. Boettger's claim that Müller transferred that part of Linnaeus's composite *Helix vivipara* which represented the "narrow" species to his *Nerita fasciata* finds equally little support, for there is no link, direct or implied, between the two concepts, while Müller's description clearly applies to some other species. Those authors who have assumed that Müller effectively restricted the species have therefore been acting on a false premise. Many important authors adopted this assumption before 1850, although even in that period there were some who did not; and Watson has clearly shown that since 1850 that idea has been followed only in Germany and some Central European countries. For the last hundred

years, the specific name *vivipara* Linnaeus, 1758 has been used for the "narrow" species in a majority of countries where the species occurs (as well as in the U.S.A.) and in a large majority of published works.

"9. The first valid restriction of *Helix vivipara* known to me is Watson's selection of a lectotype (*op cit.* 1955). Professor Mayr (16), claims that this is invalid because of Watson's error in refusing to treat the synonyms cited by Linnaeus as of equal syntype-rank with his specimens, and because he did not take all the syntypes into consideration in selecting his lectotype. I respectfully disagree with the learned Commissioner on this point, for on a literal reading of the Rules, any author is at liberty to choose any one of the original syntypes as lectotype. There are doubtless very many cases where lectotypes of unquestioned validity have been chosen without every syntype having been examined. Professor Mayr concludes that the specimen chosen by Watson should indeed be the lectotype, but he holds that this can only be brought about through the use of the plenary powers. I am unwilling to impose my view on the Commission in any way and feel that each Member should decide for himself whether or not the plenary powers must be used to secure this end. In order to simplify the procedure, it is, I think, legitimate to conclude that a Commissioner who agrees with the view expressed by Ellis, Watson and their supporters (and endorsed by Commissioner Mayr) will consent to the use of the plenary powers in this connection; while a Commissioner of the opposite view will not hesitate to use the plenary powers to secure the end sought by Boettger and his supporters.

"10. It should be clear that the stabilisation of *Helix vivipara* as the name for the "ventricose" species can only be secured by the use of the plenary powers: for the case presented by Boettger for regarding O. F. Müller as the valid "first reviser" has been shown to have no foundation in fact.

"11. A vote is therefore called for in the first part of Voting Paper V.P.(59)1 (a) either for the use of the plenary powers to set aside all previous type-selections for *Helix vivipara* Linnaeus, 1758, so as to designate in effect the specimen selected by Watson in 1955 as the lectotype of that species; or (b) to use the plenary powers in the same manner to rule that that species is to be interpreted in accordance with the alleged restriction by O. F. Müller in 1774. A vote for the use of the plenary powers in alternative (a) will entail the adoption of the proposals of paragraphs (2) and (4) of *Bull. zool. Nomencl.* 13 : 43 with those of paragraphs (1) and (2) of : 48 and of paragraphs (2), (4) and (6) of : 69-70. A vote for alternative (b) will entail the adoption of Dr. Boettger's proposals on : 52.

III. GENERIC NAME PROBLEMS

"12. The problem at this level is to decide what name is to be used for the genus to which both the "narrow" and the "ventricose" species of fresh-water snails just discussed are referred, and of which *Helix vivipara* Linnaeus, 1758, is the type-species. Three generic names, all of them objective synonyms of one another, are mainly involved, namely, *Viviparus* Montfort, 1810, *Vivipara* J. Sowerby, 1813, and *Paludina* Férussac, 1812.

"13. Ellis (1), supported again by Forcart (2) and Watson (4), as well as

by Baker (6) and Rehder (10), proposes that *Viviparus* Montfort, 1810, be accepted as the name of this genus. All the other authors listed in paragraph 2 above (with the exception of Baily) have used that generic name in their communications with this Office, so that it is legitimate to assume that they too would prefer to see *Viviparus* stabilised rather than either of the other generic names. Baily (5) proposes that the generic name *Paludina* Férussac, 1812 be adopted for the genus in question. He quotes references to show that *Paludina* has been used more often than either *Viviparus* or *Vivipara*, and that the last-mentioned has been used more often than the second. (*Vivipara* J. Sowerby, 1813, is in fact an erroneous subsequent spelling of *Viviparus* Montfort, 1810, and has only been preferred by some authors because it agrees in its feminine gender with the original gender of the specific name, and because they thought it objectionable to use a masculine name for a "viviparous" species.)

"14. Ellis (1) has shown that, while *Paludina* was the generic name most widely used in the nineteenth century, it has been quite superseded in the twentieth century by *Viviparus*. His claim that *current* (as opposed to *past*) usage would be best protected from disturbance by adopting the name *Viviparus* is not disputed. Moreover, no support is forthcoming for Baily's proposal, and Rehder (9) has shown that Dr. Baily has not cited a number of references opposed to his purpose.

"15. The alternatives at the generic name level (see Part B of the Voting Paper) are thus, either (1) to place *Viviparus* Montfort, 1810, on the Official List and to reject and place on the Official Index the names listed by Ellis (1: 40, 43); this alternative does not involve the use of the plenary powers; or (2) to use the plenary powers to suppress the generic name *Viviparus* Montfort, 1810, and to validate *Paludina* Férussac, 1812.

IV. FAMILY-GROUP NAME PROBLEM

"16. Two family-group names fall to be considered in this case, PALUDINIDAE Gray, 1840, and VIVIPARIDAE Gray, 1847. Under the revision of the Rules relating to family-group names adopted at Copenhagen in 1953 (and confirmed in London in 1958), it would be possible to retain the older of these two names (PALUDINIDAE) at the same time as the generic name *Paludina* was suppressed. This would, however, be contrary to established usage in the Mollusca, where family-group names are always made to follow the valid name of the type-genus. It is, therefore, strongly urged that the Commission should place on the Official List whichever of the two family-names mentioned accords with the generic name which is established at the same time. Thus, if *Viviparus* Montfort, 1810 is placed on the Official List of Generic Names, and if *Paludina* Férussac, 1812 is placed on the Official Index, then the plenary powers should be used to suppress PALUDINIDAE for the purposes of the Law of Priority but not for those of the Law of Homonymy and VIVIPARIDAE should be placed on the Official List of Family-Group Names. If on the other hand, the plenary powers are used to suppress the generic name *Viviparus* Montfort, 1810, then VIVIPARIDAE should be rejected and placed on the Official Index and PALUDINIDAE should be placed on the Official List. It will be noticed that the relative

priority of the family-group names is the reverse of that of the corresponding generic names, so that the alternative which can be adopted at the generic level without using the plenary powers entails the use of those powers at the family level, and vice versa. It will also be observed that, if *Viviparus* is placed on the Official List, then *Paludina* is automatically rejected as a junior objective synonym. If the plenary powers were needed to suppress *Paludina*, then PALUDINIDAE would be automatically invalid by that action. Because that is not the case, the rejection of PALUDINIDAE can only be brought about by the use of the plenary powers.

V. NOTE ON ARRANGEMENT OF VOTING PAPER

"17. In presenting a series of alternatives for the votes of Commissioners in the three parts of the accompanying Voting Paper, the alternative which has attracted the most support and which is favoured by the weight of the evidence is placed as Alternative 'A' in each case, and the alternative with less support and less favoured by the evidence is placed as Alternative 'B'. It will thus be possible to vote in a consistent manner in each of the three issues presented by striking out that numbered 'A' in each part. At the same time, it will also be possible to vote for Alternative 'B' in Part 1 and for Alternative 'A' in Parts 2 and 3, or for Alternative 'A' in Part 1 and Alternative 'B' in Parts 2 and 3 without inconsistency."

APPENDIX

Documents 8 to 17

Document 8. Statement by Commissioner Mayr, 16.7.57.—In the various applications concerning the interpretation of *Helix vivipara* Linnaeus a number of statements are made concerning the Linnean method and certain principles of nomenclature, which call for comment.

(1) It is well known that many, if not the majority of the Linnean species, were composite. In order to establish these names unequivocally a subsequent author ("first reviser") has to restrict the name to one of the components. Linnaeus himself, in later editions of his works, has often been the first reviser of his own composite earlier names.

(2) Linnaeus did not have the concept of types in the modern nomenclatorial sense of the word. He considered the cited references, illustrations, descriptions and specimens as equivalent bases of his concept of the respective species. "Authoritative", "reference" or "original" specimens in the Linnean collection were not necessarily given special treatment by Linnaeus. He merely considered them to "typify" his concept of the species. How little Linnaeus appreciated the nomenclatorial significance of such specimens is indicated by the fact that he repeatedly revised his herbarium and replaced specimens (which in part had served as basis of descriptions) by "better" ones.

(3) In the case of Linnaeus and other early authors who based their names in part or totally on previously published description or figures, these are as legitimate syntypes as specimens in their collections. A lectotype selection may be made from any of these bases of the name, as was indeed done in several recent decisions of the Commission. The statement by Watson (1957, *Bull.*

zool. Nomencl. 13 : 56) "the only undoubted syntypes of Linnaeus's *Helix vivipara* are the two numbered shells in his collection" is therefore in error. The two specimens were not the exclusive basis of *Helix vivipara* Linnaeus.

(4) A first reviser can act only if the original basis of a name is composite. Boettger (*op. cit.* 54-55) presents seemingly convincing evidence that descriptions and all references refer to the "narrow" species. The burden of proof now rests with Boettger.

(5) The unequivocal establishment of whether or not *H. vivipara* is a composite species is the crucial point in the entire question. If this is a composite species, it must be determined who is the first legitimate reviser, and if his choice would produce confusion rather than stability and universality, the Commission may have to vote to suspend the rules. In the applications now before us, some of these important matters do not seem to have been brought out with sufficient clarity.

I would not want to have this case brought to a vote until this is clarified.

Document 9. Letter from Dr. H. A. Rehder, Curator, Division of Mollusks, U.S. National Museum, Washington, D.C., 23.9.57.—I am in complete agreement with the views expressed by both A. E. Ellis and Lothar Forcart regarding the generic names and family names involved in the question of the usage of *Viviparus* versus *Paludina*, and I am opposed to the application of Joshua L. Baily, Jr. As both Ellis and Forcart have pointed out, the name *Viviparus* (or the invalid emendation *Vivipara*) have been in almost general use by everyone for the last 70 years or so. Baily, in his list of workers using the various generic names, has omitted many works using *Viviparus* or *Vivipara*. I have checked through most of the important molluscan faunal works and monographic studies published since the turn of the century, and have found that since 1900, 19 workers have used *Viviparus*, 12 have used *Vivipara*, and only 5 have used *Paludina*. I have included in this count those references cited by Baily (except his "1904 Jeffreys (J.G.)" which is non-existent; the date should be 1862), and I have omitted many of the publications listed by Watson because I have not seen them . . . Many important faunal works using *Vivipara* published in the late nineteenth century are also not listed by Baily.

I support the petition of Lothar Forcart, and hope that the Commission will rule on it favourably. Hugh Watson's discussion of the name *Helix vivipara* Linnaeus is perfectly clear and logical, and I agree with his conclusions and recommendations, as opposed to those brought forward by Dr. Boettger. I disagree, however, with Watson's statement in his "Addendum 2" regarding the type of *Paludina*. Ellis is correct in his discussion of this matter in paragraph 4 of his petition, and the type-species of *Paludina* must be the same as that of *Viviparus*.

Document 10. Letter from Dr. B. Hubendick, Naturhistoriska Riksmuseet, Stockholm, 25.10.57.—It is quite definitely clear that Linné gave the name *vivipara* to the narrower species. This is the only one which occurs in the locality or area given by Linné as the type-locality. The specimens of the more

ventricose species which are mixed with the real type in the Linnean collection must have been mixed in by accident and must originate from some other geographical area. All this is definitely settled by Watson in *Proc. malac. Soc. Lond.* 31 : 163 ff., and Ellis's application to the Commission is in accordance with the real facts. The German nomenclatorial confusion of the *Viviparus* species is most unfortunate. It is important to get rid of this confusion and not to conserve it, as Boettger suggests.

Document 11. Letter from Dr. I. C. J. Galbraith, British Museum (Natural History), London, 11.2.58.—I feel it most desirable that *vivipara* Linnaeus should apply to the narrower species and *contectus* Millet to the ventricose one, under the generic name *Viviparus* Montfort. As for the family name, I hope that the view will prevail that the Copenhagen Decision about family-group names based on junior generic synonyms does not involve changing currently accepted family names based on valid generic names. Boettger's contribution is curiously at fault in not citing Watson (1955) whose conclusions seem entirely just; and I think Bailly's proposal about *Paludina* is mistaken.

Document 12. Statement by Dr. Boettger, 11.11.58.—As the original description of *Helix vivipara* Linnaeus must be accepted the publication in the *Syst. Nat.* (ed. 10), 1758. Linnaeus cited references, illustrations and descriptions; also there are specimens as equivalent basis of his concept in the Linnean collection. Of his earlier books the *Fauna Svecica* (3) is cited by Linnaeus [Dr. Boettger quotes from the first and the 1751 editions to show that the species lived both in running and in stagnant water] . . . The note of Linnaeus that the snail is common in the river Sala (about 100 km. W. of Uppsala) is not at all the nomination of a *terra typica* as Westerlund believed (1871, *Nova Acta Reg. Soc. Sci. Upsal.* (3) 8). Westerlund was of the opinion that Linnaeus was thinking only of the running water species, because in the river Sala only this species occurs, while the stagnant water species has its northern limit in Sweden two degrees further south. Linnaeus states, however, that his species lives also in swamps, Westerlund's restriction of *Helix vivipara* to the species living in the river Sala had been preceded by that of other authors for many years.

[Dr. Boettger then discusses the Linnean synonyms and their identification with the species of running water and stagnant water respectively.]

The description of *Helix vivipara*, as most of the descriptions given by Linnaeus, is meagre. I agree with Hugh Watson that it conforms more with the river species, but it does not exclude the swamp species, considering the fact that in the time of Linnaeus the differentiations were not so exact as in our times. Obviously Hugh Watson is right when he declares that in the Linnean collection there are only specimens of the river species. But these specimens have not more nomenclatorial value than the references given by Linnaeus in describing his species. If we now had to revise this species, we might have taken the specimens as types; but this is not possible, as earlier revisions have priority. [Dr. Boettger reiterates his claim that O. F. Müller, 1774, restricted the Linnean species to the ventricose form, naming the narrow

one *Nerita fasciata*, and states that this was followed by Gmelin, 1788, Draparnaud, 1801, O. Pfeiffer, 1821, Lamarck, 1822, Rossmassler, 1835, Gray, 1840 and Küster, 1850]. In 1850, Forbes & Hanley created the slender form as the type of *Helix vivipara* Linnaeus after having pointed out that only the slender form was represented in the Linnean collection. That these specimens are not the only basis for *Helix vivipara* has been recognised by Ernst Mayr (Document 8, paragraph 3).

Document 13. Letter from Commissioner Mertens, Dr. A. Zilch and Dr. O. Kraus, Senckenberg Museum, Frankfurt a.M., Germany.—Undoubtedly it is a fact that *Helix vivipara* Linnaeus, 1758 is a composite species. Repeatedly and over many years we have studied this question, and we came to the same result as Dr. Boettger in his paper of 1931 (*Arch. Moll.* 63 : 253–254). Dr. Forcart also wrote to Dr. Zilch (23.7.52) “I also have re-examined the figures and I came to the same conclusion as Boettger”. Therefore the statement of Watson is unintelligible to us . . . Already Kobelt (1908, *Viviparus Monographie in Martini-Chemnitz, Syst. Conch.-Cab.* 1 (21a) : 303) stated “The name *Helix vivipara* Linné unquestionably comprised both the northern species ; O. F. Müller divided them, and he restricted the name *Nerita vivipara* to the species before us . . . In any case it is not useful and leads to severe confusion when, based on such insecure circumstances, the name *vivipara* Linné is transferred from that species which has been so named for more than 100 years, to another, closely allied species”.

[The writers list the authors cited by Boettger (see Document 12) who followed Müller's alleged restriction.]

Therefore we are of the opinion that in the interests of stability and continuity of nomenclature no change in such a long-established and historical usage must be made. *Helix vivipara* Linnaeus, 1758, is a composite species. We find it only necessary for the Commission to confirm the restriction by O. F. Müller (1774) and to decide that it is to be regarded as a valid first reviser action (or not). All other questions seem to us as of secondary value.

Document 14. Mr. Ellis's reply to Dr. Boettger's statement (see Document 12) 28.11.58.—Any arguments about habitats are of no significance either way, and it is misleading to refer to one species as inhabiting flowing water and the other as inhabiting still water, as the following quotations show :

Boycott, A. E., 1936, *J. Anim. Ecol.* : 139. “Both occur in England as far north as Yorks., in slow fair-sized rivers, canals and large draining ditches. Neither occurs naturally in stagnant water or closed ponds, though they will sometimes live, apparently permanently, in ponds into which they have been introduced . . . Roughly speaking their habits seem to be identical and the two are often found together.

Watson, H., 1955, *Proc. malac. Soc.* 31 : 164. “Both may occur in the same types of habitat, and it is a mistake to suppose that we can identify the species of an old author by the type of habitat in which he says that he has found it. In some districts the narrower species seems to

prefer the moving water of rivers, and the more ventricose one the still water of ponds and marshes, but it is misleading to imply that this is always the case and to term the one species fluviatile and the other lacustrine."

Draparnaud, J. P. R., 1805, *Hist. nat. Moll. terr. fluv. France* : 36. *Cyclostoma viviparum* "dans les eaux stagnantes, les fosses, les rivières, etc."

C. achatinum "habite ordinairement avec la précédente."

Watson (*op. cit.* : 163 and Document 4 : 53) shows that Linnaeus only cited figures or descriptions of the narrower species, not of the more ventricose species. That *Helix vivipara* was not a composite species has been conclusively shown by Watson in these papers. Boettger's tendentious statement that "it is a well-known and undeniable fact that *Helix vivipara* Linnaeus is a composite species" is not in fact true, and he is wrong in saying that "only a few subsequent authors have adopted this view", i.e. that of Forbes & Hanley, that the narrow species represented by the shells in the Linnean collection is the true *Helix vivipara* Linnaeus.

Boettger's contention that Linnaeus's description of *Helix vivipara* could equally apply to both species is manifestly incorrect, as "imperforata" and "obtusa" are both diagnostic characters whereby the narrower species is distinguished from the more ventricose species. The unsoundness of his argument is shown by this mis-statement.

Document 15. Letter from Mr. M. P. Kerney (Imperial College of Science, London), 3.12.58.—I find Watson's arguments for applying the name *V. viviparus* to the narrower European species and *V. contectus* to the more ventricose thoroughly conclusive, and that any attempt to reverse this usage would only cause confusion. To my knowledge, every British writer on Quaternary fossil Mollusca for the last 60 years has also followed this usage, and this again is true of most continental palaeontological literature outside Germany.

Document 16. Statement by Commissioner Mayr, 22.1.59. (1) *Is the Linnean species composite?* There is no doubt that the majority of the indications, such as the description, the two specimens in the Linnean Collection and part of the literature references refer to the narrow, river species. Others, on the other hand, clearly refer to the pond species. First, the habitat descriptions both in the Tenth Edition and in the *Fauna Svecica* refer either to both species or more exclusively to the globose species of ponds and swamps (e.g. "In Europae stagnis", and "in paludibus, lacubus . . ."). Secondly, the species figured by Gualtieri, first figure on Table 5, is in my opinion, and that of Drs. W. J. Clench and R. Turner of this museum, clearly an immature specimen of the globose species. As a third element of the globose species among the Linnean indications of *H. vivipara* must be considered the reference to Lister, Exerc. Table 2. In all other cases where Linnaeus wanted to limit himself to specific figures on tables, he stated this succinctly in his bibliographic reference, as in his two other Lister references, as well as in his citations of Gualtieri and Swammerdam. It is quite immaterial for this argument that Lister himself clearly distinguished several species among those which he

figured on this Table 2. Linnaeus in his citation made no such distinction.

On the basis of this evidence, it seems to me incontrovertible that the nominal species *Helix vivipara* Linnaeus, 1758 has a composite basis.

Better proof than anything else for the conclusion that *Helix vivipara* was for Linnaeus a composite species is the fact that he did not establish a separate species for the clearly defined and described ventricose species of Lister (nor for that of Gualtieri and in the 12th ed. for that of Seba) but included the references to published descriptions and figures of the ventricose species, that were known to him, in the nominal species *Helix vivipara* together with the references to the narrow species.

(2) *Who is the first reviser?*—The next question to be answered is to determine who qualifies as the first reviser. I checked in the 12th edition of the *Syst. Nat.* but Linnaeus—instead of eliminating the few references to the globose species—has added a new one, namely, to Seba (Volume 3, Plate 38, figure 12). Although this is of no relevance to the question of the first reviser, it confirms the conclusion that Linnaeus considered the narrow and globose forms as conspecific. The claim has been made that O. F. Müller (1774) has restricted the components of the composite species of Linnaeus. This view is not supported by the facts. There is no evidence whatsoever that Müller was aware of the composite nature of the Linnean species, he simply used the name *vivipara* and re-defined it. As a matter of fact it remained a composite, as correctly pointed out by Watson (*Bulletin*, 13 : 55). A search through the subsequent literature has failed to reveal a single author who would qualify as a first reviser. Watson's restriction (1955 : 171) does not qualify because he denies the composite nature of the Linnean species and secondly because he did not consider all of the Linnean syntypes. He states that "the only undoubted syntypes of Linnaeus's *Helix vivipara* are the two numbered shells in his collection in London". This is not correct. Linnaeus did not have our modern concept of the type as a name-bearer and indeed all specimens on which his descriptions are based and those figured in his cited illustrations are equally qualified as syntypes together with specimens in his collection. It might be important in this connection to emphasize, as has been stated repeatedly by the foremost scholars of the Linnean method, that Linnaeus considered the synonymy as important, if not more so, than his descriptions and specimens. Indeed Linnaeus was so little aware of the nomenclatorial significance of the specimens in his collection that he repeatedly replaced specimens in his herbarium which had formed the basis of his early descriptions when he found "more typical specimens" which permitted a "better" description. The concept of the nomenclatural type, the "name-bearer", has only gradually come to the fore in the post-Linnean period. It is known that as late as 1850, types were replaced in several museums by new specimens whenever the original types were lost, eaten by moths, or had become mildewed.

In short, I fail to find in the entire existing literature a clear-cut unambiguous first reviser action. Consequently I herewith propose that the Commission clearly designate one of the components of the composite Linnean species as the lectotype of *Helix vivipara*, thereby giving the name an unambiguous basis. I suggest that the Commission set aside "all previous

first-reviser actions and lectotype selections" in order to make sure that there is no further disturbance of nomenclature.

(3) *To which of the two components should the name vivipara be restricted?*—It is not possible to find a solution that will please everybody. The name *vivipara* is applied to the narrow river species in the north area and western parts of Europe and to the ventricose pond species in central Europe. Whatever course is adopted it will necessitate a switching of names in some part of Europe. It is therefore important to weigh all the arguments pro and con carefully to arrive at a decision that will be best supported by the facts of the case. It seems to me that Forcart and Watson have presented a far stronger case for restricting the name to the narrow, river species than has Boettger (*Bull. zool. Nomencl.* 13 : 50–52) in favour of the ventricose species. To begin with, the majority of the Linnean indications in the original description refer to the narrow species. Secondly, the name *vivipara* is applied to the narrow species not only in Scandinavia, Linnaeus's own country, but in much of the remainder of the world. Except for central Europe, the name *vivipara* is almost universally applied to the narrow species. A third reason is that Montfort when establishing the genus *Viviparus* in 1810 "clearly designated Linnaeus's *Helix vivipara* as the type-species of his genus, but equally clearly showed by his description and figures that he meant the narrower species". (Watson, L. C., 58). Without ignoring the fact that the ventricose species is recorded under the name *H. vivipara* in many of the standard monographs, it seems to me that the total weight of the evidence favours the narrow species.

I therefore propose that the Commission restrict the name *Helix vivipara* Linnaeus to the narrower species and designate as lectotype from all the syntypes on which Linnaeus's name was based the specimen in his collection figured on Plate 1 of the *Bulletin of Zoological Nomenclature*, Volume 13 (next to page 56).

In its consequences, my proposal coincides closely with the earlier one made by Mr. Watson. In view of the fact, however, that the Linnean species is clearly a composite I consider it impossible to arrive at a binding solution without invoking the plenary powers of the Commission.

DECISION OF THE COMMISSION

Voting Paper (59)1 was circulated under the Three-Month Rule to the Members of the Commission with the above report and Appendix on 12 March 1959. This Voting Paper was divided into three parts: Part 1 called for a vote for either Alternative 'A' (use of the plenary powers to set aside all previous selections of a lectotype for *Helix vivipara* Linnaeus, 1758, and to designate the specimen figured in *Bull. zool. Nomencl.* 13 : pl. 1) or for Alternative 'B' (use of the plenary powers to secure the application of the specific name *vivipara* to the more ventricose of the two species included by Linnaeus under that name); Part 2 called for a vote either for Alternative 'A' (to place *Viviparus* Montfort, 1810, on the Official List) or for Alternative 'B' (to use the plenary powers to suppress that name for priority but not for homonymy so as to place *Paludina* Férussac, 1812, on the Official List); Part 3 called for a vote either for Alternative 'A' (use of the plenary powers to suppress the

family-group name PALUDINIDAE Gray, 1840 for priority but not homonymy so as to validate VIVIPARIDAE Gray, 1847) or for Alternative 'B' (to place PALUDINIDAE on the Official List, and VIVIPARIDAE on the Official Index, of Family-Group Names in Zoology).

At the close of the Voting Period on 12 June 1959, the state of the voting was as follows :

Part 1. For Alternative 'A'—seventeen (17) votes, received in the following order : Lemche, Holthuis, Hemming, Vokes, Boschma, Bonnet, do Amaral, Dymond, Mayr, Riley, Jaczewski, Obruchev, Key, Stoll, Brinck, Bradley, Poll.

For Alternative 'B'—four (4) votes : Hering, Mertens, Bodenheimer, Kühnelt.

Part 2. For Alternative 'A'—eighteen (18) votes : Lemche, Holthuis, Hemming, Vokes, Boschma, do Amaral, Mertens, Dymond, Mayr, Bodenheimer, Riley, Jaczewski, Obruchev, Key, Stoll, Brinck, Bradley, Poll.

For Alternative 'B'—three (3) votes : Hering, Bonnet, Kühnelt.

Part 3. For Alternative 'A'—eighteen (18) votes (as in Part 2).

For Alternative 'B'—three (3) votes (as in Part 2).

A late affirmative vote for Alternative 'A' in each part was received from Commissioner Miller. Commissioners Hankó, Prantl, Tortonese, Cabrera and Uchida did not vote.

ORIGINAL REFERENCES

The following are the original references for names placed on Official Lists and Indexes by the Ruling given in the present Opinion :

contectum, *Cyclostoma*, Millet, 1813, *Moll. terr. fluv. obs. Dépt. Maine et Loire* : 5
fluviorum, *Viviparus*, Montfort, 1810, *Conch. syst.* 2 : 247

Paludina Férussac, 1812, *Ann. Mus. Hist. nat. Paris* 19 : 253

PALUDINIDAE, J. E. Gray, 1840, *Synopsis Cont. Brit. Mus.* (ed. 42) : 117 and

Man. Land & Freshwater Shells brit. Is. (ed. 2) : 79, 89

vivipara, *Helix*, Linnaeus, 1758, *Syst. Nat.* (ed. 10) 1 : 772

Vivipara Kobelt, 1906, *Nachr. Bl. deutsch. malak. Ges.* 38 : Inhalt [2]

Vivipara J. Sowerby, 1813, *Min. Conch.* 1(6) : 75

Viviparella Rafinesque, 1815, *Analyse Nature* : 144

VIVIPARIDAE J. E. Gray, 1847, *Proc. zool. Soc. London* 15(178) : 155

Viviparous Collinge, 1891, *Conchologist* 1 : 31

Viviparus Montfort, 1810, *Conch. syst.* 2 : 246

CERTIFICATE

WE certify that the votes cast on Voting Paper (59)1 were cast as set out above, that the proposals set out as Alternative 'A' in each of the three parts of the Voting Paper have been adopted under the plenary powers, and that the decisions so taken, being the decisions of the International Commission, are truly recorded in the present Opinion No. 573.

N. D. RILEY
Secretary

RICHARD V. MELVILLE
Assistant Secretary

International Commission on Zoological Nomenclature

London

1 July 1959